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November 7, 2017

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**Subject: Grafton 4 MA, 30 Grafton Common Wireless Telecommunications
Special Permit and Site Plan Review**

Dear Joe:

We received the following documents on October 20, 2017:

- Correspondence from Chappell Engineering Associates, LLC to Duval and Klasnick, LLC, dated October 20, 2017 re: Grafton 4 MA, with attachments.
- Plans entitled Grafton 4 MA, 30 Grafton Common, Grafton, MA 01519 dated October 18, 2017 (title block date and latest revision date), prepared by Chappell Engineering Associates, LLC (8 sheets)

Graves Engineering, Inc. (GEI) has been requested to review and comment on the plans' conformance with applicable "Grafton Zoning By-Law" amended through October 17, 2016; Massachusetts Department of Environmental Protection (MassDEP) Stormwater Handbook and standard engineering practices. As part of our initial review GEI visited the site on September 27, 2017.

This letter is a follow-up to our previous review letter dated September 28, 2017. For clarity, comments from our previous letter are *italicized* and our comments to the Applicant's responses are depicted in **bold**. Previous comment numbering has been maintained.

Our comments follow:

Zoning By-Law

1. *Although elevation information was provided on the building sections on Sheet A02, existing and proposed topography were not included on the plans. The applicant requested a waiver from providing existing and proposed topography. GEI has no issue with this waiver request provided stormwater flow paths are not impeded. Please see further elaboration at Comment #6. (§1.3.3.3.d.12)*

The design engineer responded the project is small and does not pose an appreciable disturbance to existing storm water flow paths. GEI concurs that appreciable storm water impacts to abutters are unlikely. The design engineer also responded that existing and proposed topography will be included in the construction drawings. If the design engineer's response is acceptable to the Planning Board, GEI is available to assist the Planning Board with review of construction drawings if the Board so desires.

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2. *A rain canopy is proposed over the equipment pad. The potential exists for the generation of nuisance noise when rainfall strikes the metal decking surface of the rain canopy. The nearest residential dwelling is located approximately 100 feet from the rain canopy. The Planning Board may wish to require sound-deadening provisions for the decking or require an alternative material on the top surface of the rain canopy. (§1.5.5.a & §1.5.5.g)*

Acknowledged. The applicant provided an Environmental Sound Assessment that focused on the equipment, but did also address weather interaction with the outdoor surfaces. The assessment noted that sound from weather interaction with the compound would be similar to weather interactions with existing homes, automobiles, sheds, etc. (Page 12, third paragraph)

Hydrology & MassDEP Stormwater Management

3. *The proposed impervious surface area is minimal (183+/- sq. ft.). As such, GEI has no issue relative compliance with MassDEP Stormwater Standards provided construction-phase erosion control device(s) are utilized to prevent sediment from entering the site's drainage system. The plans should be revised to show the locations of such erosion control device(s).*

Sheet A01 was revised to include a note that erosion control devices shall be utilized around the area of the proposed work and that such devices shall be shown on the construction drawings. GEI is available to assist the Planning Board with review of construction drawings if the Board so desires.

General Engineering Comments

4. *Sheets C02 and A01 show in general terms a route between the equipment area and steeple for the electric conduits, telephone conduits and signal cables and list alternative routes. One of the routes is "underground within the yard of the building." Any underground work at the site needs to avoid damage to or negative impacts to an existing drainage system that serves the church building. GEI recognizes that General Note 10 on Sheet C02 addresses existing active utilities. Nevertheless, in 2001 an elaborate system of surface water and groundwater drainage pipes and stone-filled drains to collect roof runoff (these are located along the entire length of the northern and southern sides of the building) was installed, and a pipe for this system passes under the proposed location of the equipment area. Two photographs of the drainage system are presented at the end of this letter. Conduit routing must avoid negative impacts to the drainage system and its functions.*

Acknowledged. A note was added at the bottom left corner of Sheet A01 relative to the presence, safeguarding, and oversight of any modifications to the existing drainage system.

5. *Sheets A01 and A02 (C02) of the plans identify the ground surface adjacent to the building on the northern and southern sides as being grass. Based upon our visual observations during our site visit and upon our knowledge of the site, these surfaces consist of stone which is part of the site's drainage system. The plans need to be revised to identify the correct ground cover.*

Acknowledged. The ground cover notes have been revised on Sheets A01 and C02.

6. *Although topographic information was not included on the plans, the equipment pad and fence are proposed in the "low area" between two retaining walls on the western side of the building. This "low area" allows stormwater adjacent to the building to drain away from*

the building in a westerly direction. The equipment pad and fence are proposed such that they will be adjacent to the southern stone wall and will likely block the flow of stormwater from the area between the equipment pad and the building. The flow of stormwater must not be impeded; the equipment pad may have to be shifted to the north or special provisions made to accommodate stormwater flow around the equipment pad.

The design engineer responded that this issue will be addressed in the construction drawings. If the design engineer's response is acceptable to the Planning Board, GEI is available to assist the Planning Board with review of construction drawings if the Board so desires.

7. *The gas line to serve the generator is proposed to cross an existing masonry stone retaining wall twice. During construction, the gas line and meter locations will have to be coordinated with the gas utility company, but nonetheless it seems prudent to avoid crossing the retaining wall.*

Acknowledged. A leader note was added to Sheet A01 clarifying that the gas line will be routed underground and below the existing wall.

General Comments

8. *GEI did not review information associated with the wireless telecommunications equipment, the rain canopy's structural design or the Environmental Sound Assessment (which pertains to the generator). Such reviews are beyond the scope of this civil engineering-related site plan review.*

No further comment necessary.

9. *GEI did not review the structural aspects of the proposed concrete retaining wall or its footing. Such a structural review is beyond the scope of this civil engineering-related site plan review.*

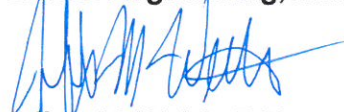
No further comment necessary.

10. *The typographic error in the site's zip code (02519) on Sheet T01 should be corrected if the plans are revised for any other reason.*

Acknowledged. The zip code has been corrected.

We trust this letter addresses your review requirements. Feel free to contact this office if you have any questions or comments.

Very truly yours,
Graves Engineering, Inc.



Jeffrey M. Walsh, P.E.
Vice President

Cc: Daniel D. Klasnick, Esq.; Duval & Klasnick LLC